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### ASSESSMENT OF HEAVY METALS IN VARIETIES OF VEGETABLE SAMPLES IN BANGLADESH

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Contamination of vegetable crops (an important part of people's diet) with heavy metals is a health concern. Therefore, monitoring levels of heavy metals and nutrients in regular vegetables can provide useful information for promoting food safety. The present study was conducted to assess the risk to human health by heavy metals (Zn, Fe, Mn, Cu, Ni, Cd) through the intake of locally grown vegetables in Hazaratpur Union, Keraniganj Upzilla, Dhaka. Twenty four samples of eighty varieties grown in local agricultural land were collected. These samples classified into leafy vegetables (Spinach, Red Spinach, Amaranth leaves, Cabbage); legumes (bean); roots (carrot) and fruits (tomato, brinjal). Samples were analyzed for heavy metals and nutrients concentration by atomic absorption spectroscopy (AAS) after extraction with Aqua Regia method (drying, grounding and acid digestion). The result revealed that in leafy vegetable, concentration of heavy metals and nutrients found were Mn (0.79-4.03ppm/1g); Fe (12.27-104.07ppm/1g); Cu (0.08-0.32ppm/1g); Zn (23.55-98.01ppm/1g); Ni & Cd (BDL). In root vegetable, heavy metals Mn (0.55-1.19 ppm/1g); Fe (13.39-39.45 ppm/1g); Cu (0.10-0.27 ppm/1g); Zn (0.19-0.25 ppm/1g) were found. Ni and Cd found in BDL. In legumes, concentrations found were Mn (0.39-1.55 ppm/1g); Fe (7.19-36.98 ppm/1g); Cu (0.18-0.20 ppm/1g); Zn (0.23-0.30 ppm/1g), Ni & Cd (BDL). In fruits, concentrations found Mn (0.28-1.20 ppm/1g); Fe (2.41-36.06 ppm/1g); Cu (0.13-0.30 ppm/1g); Zn (0.23-0.39 ppm/1g); Ni & Cd (BDL). Data analysis showed that vegetables (leafy) were found to be contaminated more by heavy metals compared to rest of varieties (root, legume n fruit) vegetables. In leafy ones, all heavy metals were found above the permissible level i.e. higher value than the safe limit for consumption according to World Health Organization (WHO). Concentrations of Cd and Ni were found below detection limit (BDL). Their concentrations varied with the metals and locations, showing trend Fe>Zn>Mn>Cu>Ni and Cd. Heavy metals can bind to vital cellular components and interfere with their functioning. Long-term exposure to heavy metals can have carcinogenic, central and peripheral nervous system and circulatory effects.

**Keywords:** Atomic Absorption Spectroscopy (AAS); World Health Organization (WHO); Heavy Metals; Below Detection Limit (BDL).